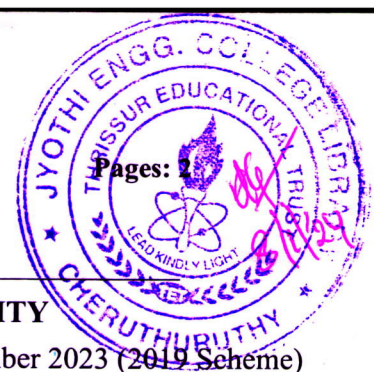B

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Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Third Semester B.Tech Degree Regular and Supplementary Examination December 2023 (2019 Scheme)

Course Code: MRT201
Course Name: ELECTRICAL MACHINES & DRIVES
Max. Marks: 100   Duration: 3 Hours

PART A
Answer all questions. Each question carries 3 marks   Marks

1	Derive emf equation of dc generator.	(3)
2	Draw power flow diagram for dc motor.	(3)
3	Compare core type and shell type transformer.	(3)
4	Explain working principle of three phase induction motor.	(3)
5	Why single phase induction motor is not self-starting? How this motor can be self-started.	(3)
6	Define Voltage regulation. Write the related equation.	(3)
7	Draw the structure and symbol of SCR	(3)
8	Explain working principle of synchronous motor.	(3)
9	Explain factors affecting choice of electrical drive.	(3)
10	Describe status of ac and dc drive.	(3)

PART B
Answer any one full question from each module. Each question carries 14 marks
Module 1

11	With the help of neat sketch explain the construction of dc machines.	(14)
12	What is the need of a starter? Explain working of four point starter with help of neat diagram.	(14)

Module 2

13	Explain the suitable test to find core losses in transformer. Also describe different losses in transformer.	(14)
14	Explain the concept of rotating magnetic field of three phase induction motor. Also derive torque equation for the motor.	(14)

Module 3

15 Explain (a) Split phase induction motor (b) Capacitor start capacitor run motor. (14)

16 Explain features of cylindrical rotor type alternator. Explain emf method to determine voltage regulation. (14)

Module 4

17 Explain different types of stepper motor with help of neat diagram. (14)

18 Describe working of single phase full wave bridge controlled rectifier with help of neat circuit diagram and waveforms. (14)

Module 5

19 Explain (a) steady state stability (b) Load equalisation (14)

20 Explain V/F control of three phase induction motor drive. (14)